PRICE $5.00

POWER SUPPLY

VOLTAGE REGULATED
POWER SUPPLY

MODEL SM 325-2

SERIAL NO. C-40489

INSTRUCTION MANUAL

KEPCO INC.®

131-38 SANFORD AVENUE • FLUSHING, N. Y. 11352
Area Code 212 IN 1-7000 • TWX # 212-539-6623

SERIES CONNECTION

Kepco Voltage Regulated Power Supplies can be connected in series for increased voltage, provided the specified limits on the voltage to chassis are not exceeded. When series connected, supplies should be protected by means of a semiconductor diode, reverse-connected across the output terminals of each power supply. The peak reverse voltage (PRV) rating of this diode should be chosen to be at least as large as the voltage rating of the supply to which it is connected. The forward (continuous) current rating of the diode should be capable of carrying the largest short circuit current of the series inter-connected supplies.

INSTRUCTION MANUAL

VOLTAGE REGULATED POWER SUPPLY

MODEL SM 325-2

SERIAL NO. C-40489

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SPECIFICATIONS AND CONTROLS FOR MODELS SM 325-2 AND SM 325-2M

I. ELECTRICAL AND PHYSICAL SPECIFICATIONS:

....DC OUTPUT VOLTAGE:
0-325 volts DC, continuously variable.

....DC OUTPUT CURRENT:
0-2 amperes, continuous duty.

....AC INPUT:
105-125 volts. 60 $\pm$ 1 cps; 11.0 amperes (max.)

....REGULATION:
LINE: 0.01% output voltage change for 105-125 v ac line variation at any output voltage within the specified range.

LOAD: 0.05% or 1 millivolt output voltage change (whichever is greater) for NO LOAD to FULL LOAD change at any output voltage within the specified range.

....RIPPLE: Less than 1 millivolt rms.

....STABILITY: Output varies less than 0.05% or 3 millivolts (whichever is greater) over a period of 8 hours after warmup. Measured at constant line voltage, load and ambient temperature.

....OUTPUT IMPEDANCE:
Less than 0.1 ohm from DC to 100 cps.
Less than 0.005 ohm from 100 cps to 1 kc.
Less than 0.1 ohm + 1.0 μh effective series inductance from 1 kc to 100 kc.

....RECOVERY TIME: 50 microseconds.

....TEMPERATURE COEFFICIENT:
Output voltage changes less than 0.05% per degree C.

....AMBIENT OPERATING TEMPERATURE:
-20°C to +50°C maximum. Protective circuit turns unit off should an over-temperature condition occur. Reset with power on-off switch.

....STORAGE TEMPERATURE:
-40°C to +85°C.

....DIMENSIONS:
Height 8-3/4", Width 19", Depth 13-7/8" behind panel.

....COLOR:
Kepco Standard Gray Hammertone.

....PANEL METERS: (applies only to Model SM 325-2M)
Voltmeter: 0-400 volts, 2-1/2".
Ammeter: 0-2 amperes, 2-1/2".

II. TERMINALS AND CONTROLS -

- ON FRONT PANEL:

....DC OUTPUT and GROUND binding posts, clearly marked. Output terminals isolated from chassis; either positive or negative terminal may be grounded.

....VOLTAGE CONTROL, continuously variable, for setting output voltage.

....POWER ON-OFF SWITCH.

- AT REAR OF UNIT:

....DC OUTPUT and GROUND binding posts, clearly marked; connected internally to respective front panel binding posts.

....REMOTE ERROR SENSING binding posts provide means of connecting output to maintain specified regulation directly at remote load terminals. (See Section C)

III. PROTECTIVE FEATURES -

....POWER INPUT FUSE (ac) on front panel.

....DC OUTPUT FUSE (ac) on front panel.

....REFERENCE FUSE (ac) for internal circuitry.

....OVERLOAD PROTECTION:
Inherent current limiting action of Kepco "FLUX-O-TRAN" transformer permits momentary short circuit of output without damage to unit. Continuous overload or short circuit will open the DC OUTPUT FUSE.

....OVER-TEMPERATURE PROTECTION:
Thermostat relay control turns unit OFF if temperature of PASS elements exceeds safe limit. Relay is reset by interrupting input power with ON-OFF switch on front panel, or by disconnecting line cord from power source.

SECTION B

BRIEF THEORY:

Two circuit schematic drawings titled "POWER UNIT" and "CONTROL UNIT" are included in the Reference Index of this instruction manual. These drawings contain designations corresponding to the capitalized terms in the following discussion.

Some basic functional relationships in this power supply are illustrated in block Diagram B-1 (Page B-2A).

The POWER UNIT includes:

DC SOURCES:

....MAIN SUPPLY - (consisting of a Kepco "Flux-O-Tran" transformer, full wave bridge rectifier, and capacitive filter) provides line regulated DC power for the output, via the PASS CIRCUITRY.

....AUXILIARY SUPPLIES: COLLECTOR SUPPLY (negative full wave rectified) for PASS CIRCUITRY driver stages not connected to MAIN SUPPLY; I_{CO} SUPPLY (full wave rectified) compensates for spurious biasing effects of collector leakage current; RETURN SUPPLY (full wave rectified) acts as leakage current path for series pass transistors and as bleed path to provide minimum operating current for pass transistors; CONTROL UNIT SUPPLY (full wave rectified).

PASS CIRCUITRY:

The power transistors which function as pass elements (i.e. are in series with the load) may be regarded effectively as variable resistors (or conductors) controlled by a CONTROL SIGNAL. The current "passed" by these elements is a function of the emitter-base bias. The CONTROL SIGNAL is applied to the base terminal; hence a negative CONTROL SIGNAL will aid the forward conduction of a PNP transistor while a positive CONTROL SIGNAL will reduce the forward conduction. In response to the CONTROL SIGNAL the pass elements effect a current and voltage distribution in the main DC loop which holds the output voltage constant.

The CONTROL UNIT includes:

REFERENCE CIRCUITRY:

The function of the REFERENCE CIRCUITRY is to maintain a precise, stable, voltage standard for the COMPARISON AMPLIFIER.

COMPARISON AMPLIFIER:

The COMPARISON AMPLIFIER is essentially a series of cascaded transistor amplifiers which boost the differential error signal produced in the COMPARISON BRIDGE to a level sufficient to drive the PASS CIRCUITRY. The COMPARISON AMPLIFIER is connected across the COMPARISON BRIDGE from the junction of the VOLTAGE CONTROL and the REFERENCE RESISTANCE to the junction of the REFERENCE DIODE and the negative output terminal (See Diagram on Page B-2A). This arrangement is similar to that of a null galvanometer across a Wheatstone bridge. Unbalance in the COMPARISON BRIDGE is amplified to produce a CONTROL SIGNAL of suitable magnitude and phase to effect corrective action by the PASS CIRCUITRY.

COMPARISON BRIDGE: (See Diagram B-2, Page B-2A).

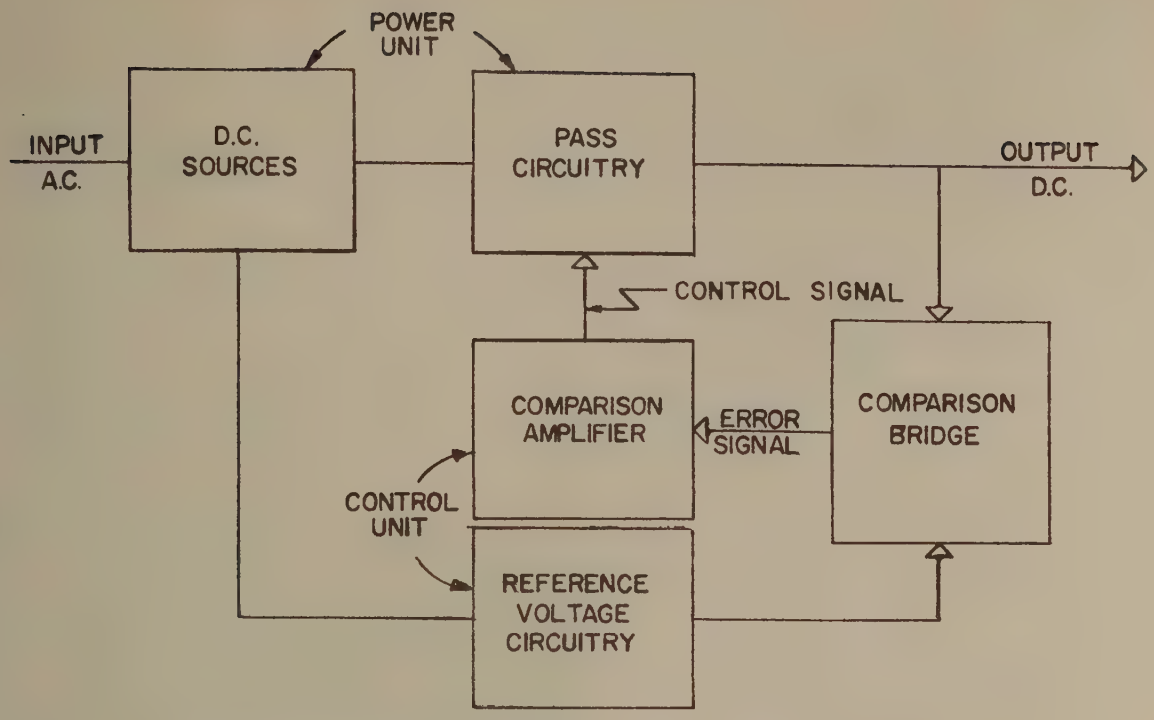
This bridge circuit implements the comparison between the OUTPUT VOLTAGE and the REFERENCE VOLTAGE. The signal produced by the comparison drives the COMPARISON AMPLIFIER.

Balance occurs in the Comparison Bridge when the following ratios are equal:

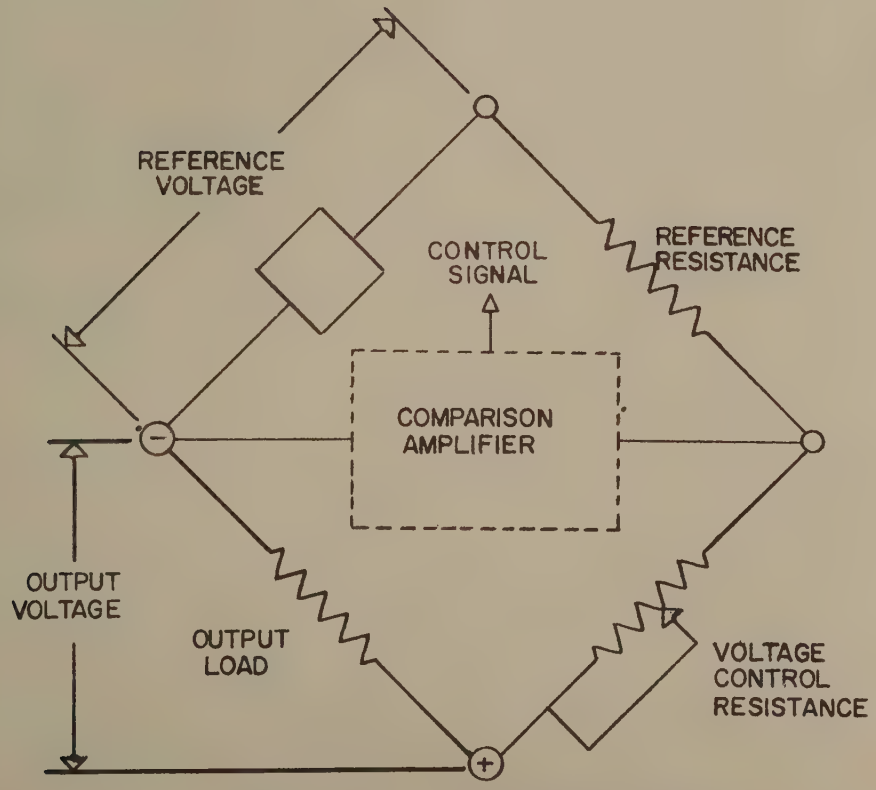
$$\frac{\text{Output Voltage}}{\text{Voltage Control Resistance}} = \frac{\text{Reference Voltage}}{\text{Reference Resistance}}$$

When, for example, the Comparison Bridge is unbalance by a decreasing output voltage drop across the load, it gives rise to a negative signal at the base of the COMPARISON FOLLOWER in the COMPARISON AMPLIFIER circuit. This signal is amplified in cascade and communicated to the pass elements as a negative base input aiding their forward conduction and consequently increasing the output voltage.

A bridge unbalance caused by an increasing output voltage produces, of course, a chain of oppositely biased circuit responses which reduce the voltage across the load.



(DIAGRAM B-1) *VOLTAGE REGULATED POWER SUPPLY*



(DIAGRAM B-2) *COMPARISON BRIDGE*

This power supply is shipped without any internal packing material; and may be put into operation immediately. It is designed for rack and for bench use. Carrying handles are provided on front panel.

....INTIAL "TURN - ON" PROCEDURE:

1. Adjust VOLTAGE CONTROL to approximate mid-range position.
2. With POWER ON-OFF switch set in "OFF" position, connect line cord to 115 v ac, 60 cps input power. If outlet is not polarized use 3 to 2 - prong adapter supplied with unit.
3. Set POWER ON-OFF switch to "ON" position.
4. Adjust VOLTAGE CONTROL to obtain desired output voltage.

....GENERAL OPERATION:

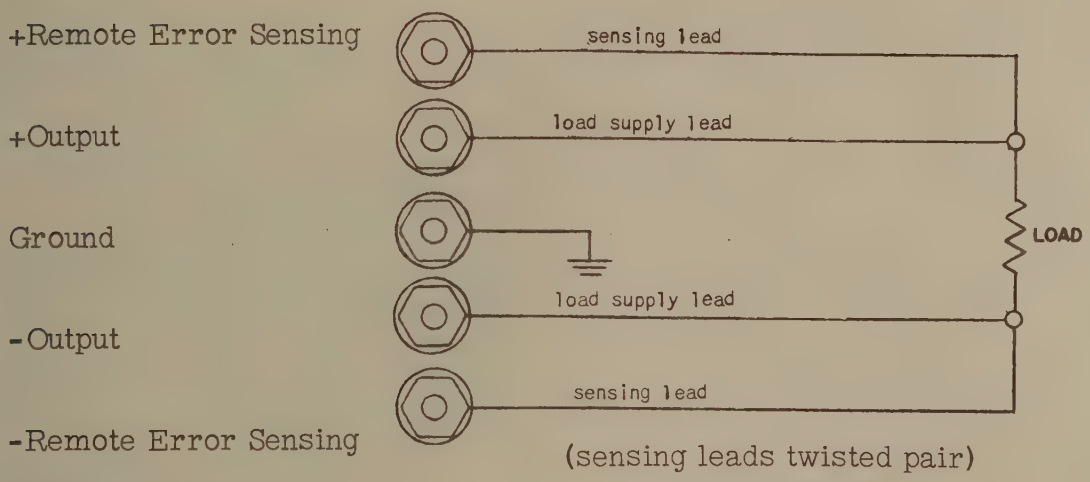
1. Once it has been determined that the unit is functioning satisfactorily, it is subsequently unnecessary to follow the INITIAL TURN-ON PROCEDURE.
2. The VOLTAGE CONTROL may be left fixed at any setting and the power turned "ON" and "OFF" without any harmful effects.

....MAINTENANCE AND REPAIR:

1. Under normal operating conditions, no mechanical maintenance of any kind should be required. Conservatively rated electrical components assure long trouble-free operating life.
2. Exceptional component accessibility, provided by resistor board construction and plug-in sub-assemblies, facilitates servicing, should it be required. It is emphatically recommended that trouble-shooting be handled by personnel highly familiar with transistor circuitry, - preferably with experience in closed-loop designs.
3. This unit should not be returned to the manufacturer without proper authorization and shipping instructions. In any correspondence with the factory regarding repair, the model, serial number, and symptoms of malfunction must be included.

REMOTE ERROR SENSING OPERATION

(Terminal Connections)



(sensing leads twisted pair)

(Procedure)

1. With AC input power disconnected, remove jumpers between plus and minus Output terminals and Remote Error Sensing terminals on the rear of the unit.

2. Using twisted pair wire, connect sensing leads from positive and negative Remote Error Sensing terminals to the load (observing polarities).

3. Using twisted pair wire, connect load supply leads from positive and negative Output terminals.

IMPORTANT NOTE: This unit should not be operated with Remote Error Sensing if the voltage drop across the load supply leads exceeds 0.5 volt (maximum) per lead at maximum rated output current.

kepco inc. REPLACEMENT PARTS LIST

POWER SUPPLY MODEL SM325-2,2M,-2MX Code 7-1362

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
B201	1	Fan Venturi	Rotron	149-0013
C201,202, 203,205	4	Capacitor,Electrol, Can 1.0 K µf, 450 V	Industrial Cond. 40 B 808	117-0249
C204	1	Capacitor,Paper Can Type 8 µf, 660 VAC	Industrial Cond. 2465-SVR	117-0280
C206	1	Capacitor,Mylar 0.5 µf, 600 V	Hopkins P56 M	117-0208
C207	1	Capacitor,Paper Can 2 X1 MF 600 V	Industrial Cond. 315 HA	117-0022
C301	1	Capacitor, Ceramic 0.05 µf, 500 V	Sprague 36 C 142 A1	117-0163
C302	1	Capacitor,Electrol. Pigtail 10 µf, 150 V	Industrial Cond. 10 B912 RM	117-0147
C401	1	Capacitor, Electrol,Pigtail 350 µf, 50 V	Industrial Cond. 1B844	117-0114
C402	1	Capacitor,Electrol,Pigtail 100 µf, 200 V	Industrial Cond. 20B 317RM	117-0222
C403	1	Capacitor,Electrol. Pigtail 500 µf, 50 V	Industrial Cond. 1B1163Rm	117-0221
C404	1	(Same as C403)		
C405	1	Capacitor,Ceramic 0.05 µf, 500 V	Sprague 36 C142 A1	117-0163
C406	1	(Same as C405)		
C501	1	Capacitor,Electrol,Pigtail 200 µf, 450 V	Industrial Cond. 45 RM 20	117-0151
C502	1	Capacitor, Mylar 0.1 µf, 1KV	Good-All 620S104010W	117-0073
CR201	1	Rectifier,Silicon Stack	Kepco FWB 25A 500 PIV	124-0159
CR301-304	4	Rectifier,Silicon Pigtail	Automatic PT-5	124-0028
CR401-402	2	Rectifier,Silicon Pigtail	Columbus CEC105	124-0133
CR403	1	Rectifier,Silicon Pigtail	Automatic PT-5	124-0028
CR404	1	(Same as CR403)		

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
CR405-408	4	(Same as CR401,402)		
F101	1	Fuse Instantaneous	Bussman ABC 15 A	141-0010
F102	1	Fuse,Slow Blow	Bussman MDX 3A	141-0028
F401	1	Fuse,Instantaneous	Bussman AGC 2A	141-0012
M101	1	Meter 400 VDC,2½"	General Elec. 8DW91V206AY2	135-0157
M102	1	Meter 2 ADC 2½"	General Elec. 8DW91A225BR2	135-0154
PL101	1	Pilot Light	General Elec. NE 51	153-0024
Q301	1	Transistor PNP	Tung-Sol 2N 382 PNP	119-0022
Q302	1	Transistor,PNP	Tung-Sol 2N1172	119-0034
R201	1	Resistor,Fixed Power Strip 1.5 K ohm, 40 W	Ward Leonard 40 S1500	115-0577
R202	1	Resistor,Fixed Power Strip 20 ohm, 20 W	Ward Leonard 20S20	115-0967
R203	1	Resistor,Fixed Power Strip 100 ohm 40 W	Ward Leonard 40 S100	115-0594
R205	1	Resistor,Fixed Power Strip 10 K ohm 20 W	Ward Leonard 20 S10000	115-0770
R205	1	Resistor,Fixed Power Ribbon 2.5 ohm 40 W	Hardwick Hindle Type BR	115-1020
R207	1	(Same as R206)		
R208	1	Resistor,Fixed Power Ribbon 1 ohm 40 W	Hardwick Hindle Type BR	115-0834
R209	1	Resistor,Variable Wire Wd. 50 K ohm 4 W	General Radio 975 Q	115-0552
R210	1	Resistor,Fixed Power Strip 2 K ohm 40 W	Ward Leonard 40 S 2000	115-0699
R211	1	(Same as R210)		
R212	1	Resistor,Fixed Molded 50 ohm 3 W	Ward Leonard 3X50	115-0641

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SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
R213	1	(Same as R212)		
R214	1	Resistor,Fixed Molded 33 ohm ½ W	Allen Bradley EB3301	115-0681
R215	1	Resistor,Fixed Molded 10 ohm ½ W	Allen Bradley EB1001	115-0502
R216	1	Resistor,Fixed Power Axial 10 ohm, 3 W	Ward Leonard 3X10	115-0421
R301	1	Resistor,Fixed Power Axial 50 ohm 3 W	Ward Leonard 3X50	115-0641
R302	1	Resistor,Fixed Molded 470 ohm 1 W	Allen Bradley GB4711	115-0630
R303	1	Resistor,Fixed Molded 5.6 K ohm ½ W	Allen Bradley EB5626	115-0559
R304	1	Resistor,Fixed Molded 1 K [illegible]	Allen Bradley [illegible]	115-0960
R305	1	Resistor Fixed Power Axial 300 ohm 3 W	Ward Leonard 3X300	115-0444
R306	1	Resistor,Fixed Molded 180 ohm ½ W	Allen Bradley EB3925	115-0807
R307	1	Resistor,Fixed Molded 330 K ohm ½ W	Allen Bradley EB3345	115-0250
R308	1	Resistor,Fixed Power Axial 1 K ohm 5 W	Ward Leonard 5X1000	115-0512
R309	1	Resistor,Fixed Molded 100 K ½ W	Allen Bradley EB1041	115-0809
R310	1	Resistor,Fixed Molded 1 K ohm ½ W	Allen Bradley EB1021	115-0547
RL101	1	Relay 3PDT	Kurman 26 D 3C	140-0040
S101	1	Switch,Toggle SPST	Carling AA252-71-2	127-0107
T201	1	Transformer,Flux-O-Tran	Kepco 100-1193A	100-1193A
T202	1	TransformerVariable	Superior Elec. Q216U	175-0399
T401	1	Transformer	Kepco 100-1179B	100-1179B

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SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
Transistor Assemblies:				
A901	1	Pass Transistor Assembly AO/SP67B	Kepco Inc.	110-0122
		Includes the following:		
	1	Transistor, PNP	Motorola SP67B	119-0037
A902	1	Pass Transistor Assembly 2CO/SP67B	Kepco Inc.	110-0116
		Includes the following:		
	2	Resistor Fixed, Power Axial 0.2 ohm, 5 W	Ward Leonard 7/"-Y-0.2ohm	115-0891
	2	Transistor, PNP	Motorola SP67B	119-0037
A903	1	Pass Transistor Assembly 2CO/2TC SP67B	Kepco Inc	110-0123
		Includes the following:		
	2	Resistor, Fixed Power Axial 0.2 ohm, 5 W	Ward Leonard 7/8"-Y-0.2 ohm	115-0891
	2	Transistor, PNP	Motorola SP67B	119-0037
	1	Switch, Thermostat	Chatham DRSCORP73C	127-0093
A904	1	Rectifier Assembly	Kepco Inc.	109-0019
		Includes the following:		
	1	Reference Diode	Hoffman 1N1374	121-0018

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kepco INC. ® REPLACEMENT PARTS LIST

CONTROL UNIT MODEL TRAM - 32 Code 9-1262

SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
C1	1	Capacitor, Mylar 0.22 µf, 200 v	Good-All 620S2242W	117-0107
C2	1	Capacitor, Ceramic 0.1 µf, 500 v	Sprague 41C92	117-0087
C3	1	Capacitor, Electrl. Pigtail 25 µf, 25 v	Industrial Cond. 1B1063	117-0105
C4	1	Capacitor, Mylar 0.4 µf, 200 v	Hopkins Eng. P42MK	117-0128
CR1, 2	2	Rectifier, Silicon, Pigtail	Columbus CEC105	124-0133
Q1, 3, 4, 5	4	Transistor, NPN	General Transistor	**119-0024
Q2	1	Transistor, PNP	Tung-Sol	**119-0022
Q6	1	Transistor, PNP	Delco 2N1172	**119-0034
R1	1	Resistor, Fixed, Molded 100 ohm, 1 w	Allen Bradley GB1011	115-0002
R2	1	Resistor, Fixed, Molded 10 ohm, 1/2 w	Allen Bradley EB1001	115-0502
R3	1	Resistor, Fixed, Molded 4.7 K ohm, 1/2 w	Allen Bradley EB4721	115-0467
R4	1	Resistor, Fixed, Molded 240 ohm, 1/2 w	Allen Bradley EB2415	115-0084
R5	1	Resistor, Fixed, Molded 620 ohm, 1/2 w	Allen Bradley EB6215	115-0565
R6	1	Resistor, Fixed, Molded 82 ohm, 1/2 w	Allen Bradley EB8201	115-0941
R7	1	Resistor, Fixed, Molded 2.7 K ohm, 1/2 w	Allen Bradley EB2721	115-0560
R8	1	Resistor, Fixed, Molded 3.9 K ohm, 1/2 w	Allen Bradley EB3925	115-0808
R9, 10	2	Resistor, Fixed, Power, Axial 500 ohm, 3 w	Ward Leonard 3X500	115-0459
R11, 15	2	Resistor, Fixed, Molded 560 ohm, 1/2	Allen Bradley EB5615	115-0888
R12	1	Resistor, Fixed, Molded 13 K ohm, 1/2 w	Allen Bradley EB1335	115-0920
R13	1	Resistor, Fixed, Molded 1.8 K ohm, 1/2 w	Allen Bradley EB1821	115-0473

**See Field Replacement Page

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SCHEMATIC NO.	QTY.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)	KEPCO PART NO.
R14	1	Resistor, Fixed, Molded 750 ohm, 1/2 w	Allen Bradley EB7515	115-0566
R16	1	Resistor, Fixed, Molded 2.2 K ohm, 1/2 w	Allen Bradley EB2221	115-0466
R17	1	Resistor, Fixed, Molded 47 ohm, 1 w	Allen Bradley GB4701	115-0005
R18	1	Resistor, Fixed, Molded 10 ohm, 1 w	Allen Bradley GB1001	115-0052
R19	1	Resistor, Variable Multiturn 1 K ohm, 1/4 w	Bourns 271-1-102	115-0739
R20	1	Resistor, Fixed, Molded 56 K ohm, 1/2 w	Allen Bradley EB5631	115-0255
RD1	1	Reference Diode	Hoffman RS-6	121-0028

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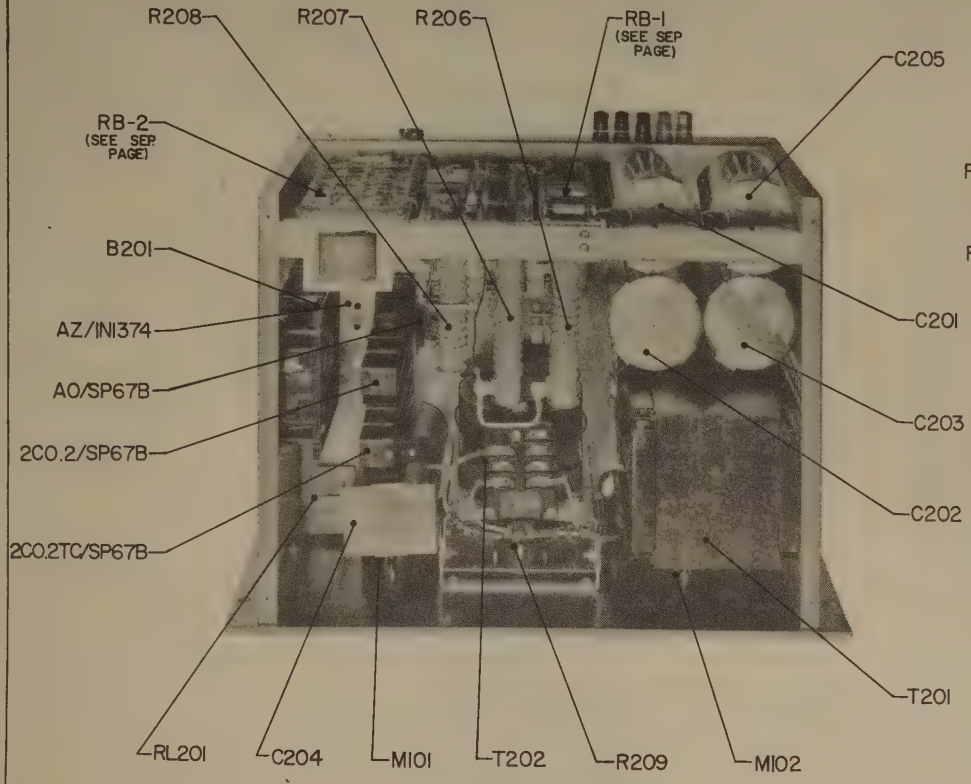
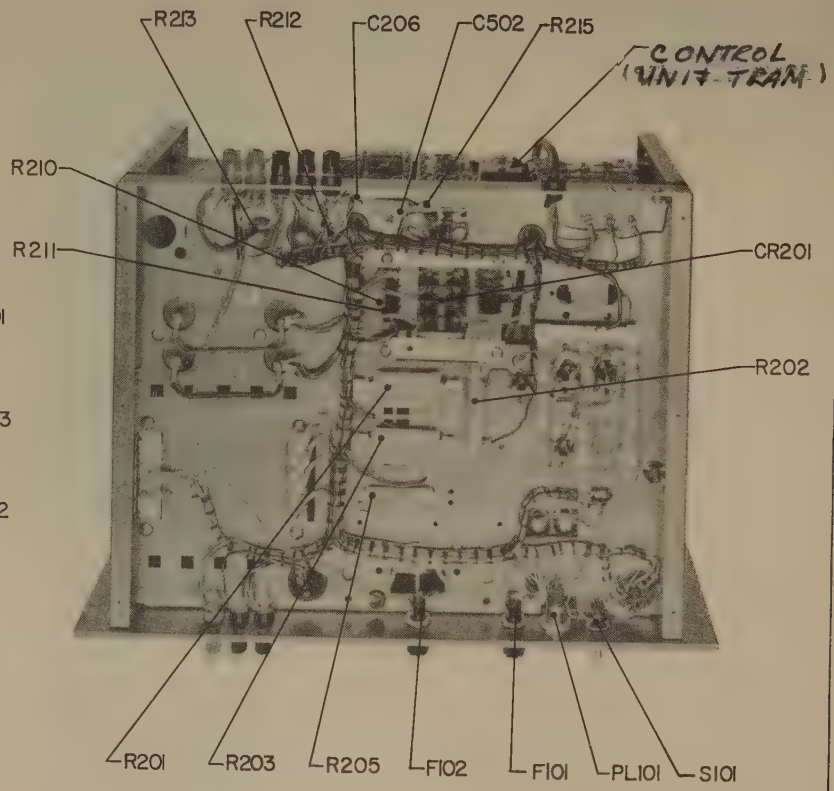
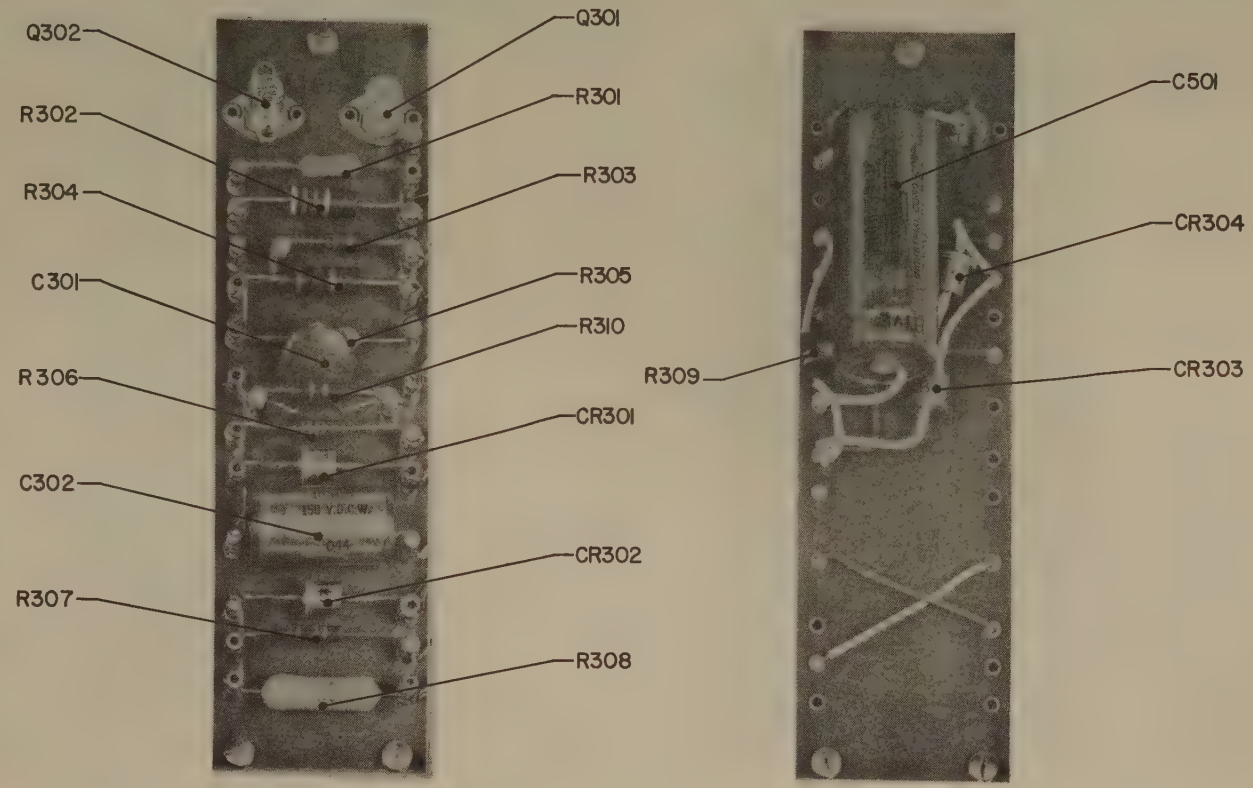


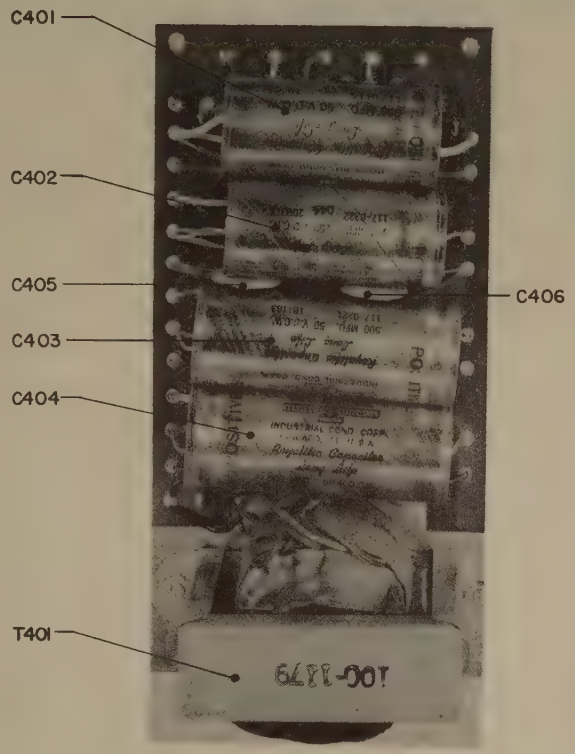


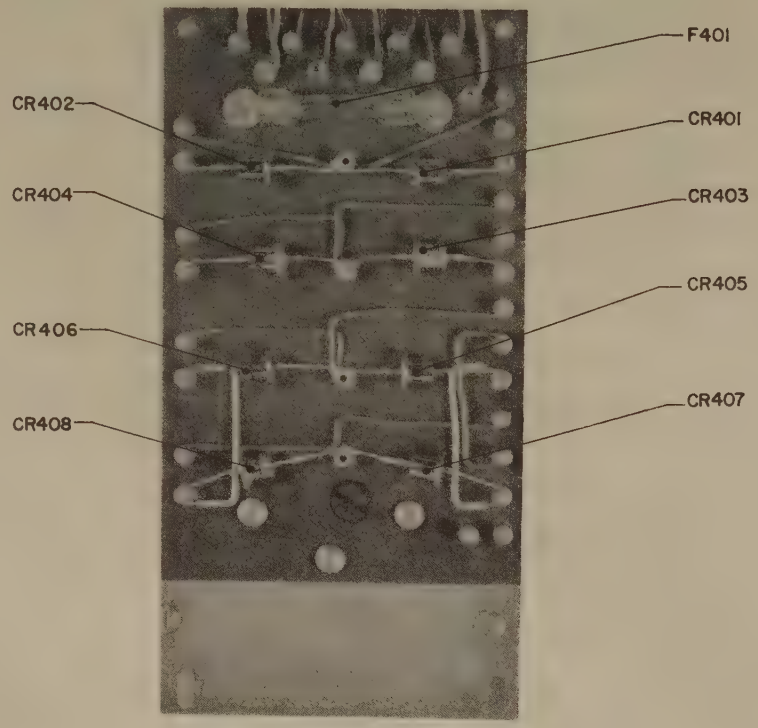
KEPCO INC. FLUSHING NEW YORK	
ITEM: POWER UNIT	DES 9-5-61
	APPD J.P.K.
MODEL SM-325-2	DFTN R.C.
DWG. No CM01079	CHKD T.T.R.



CORRECTIONS, IF ANY, APPEAR ON SHEET ATTACHED TO REAR COVER

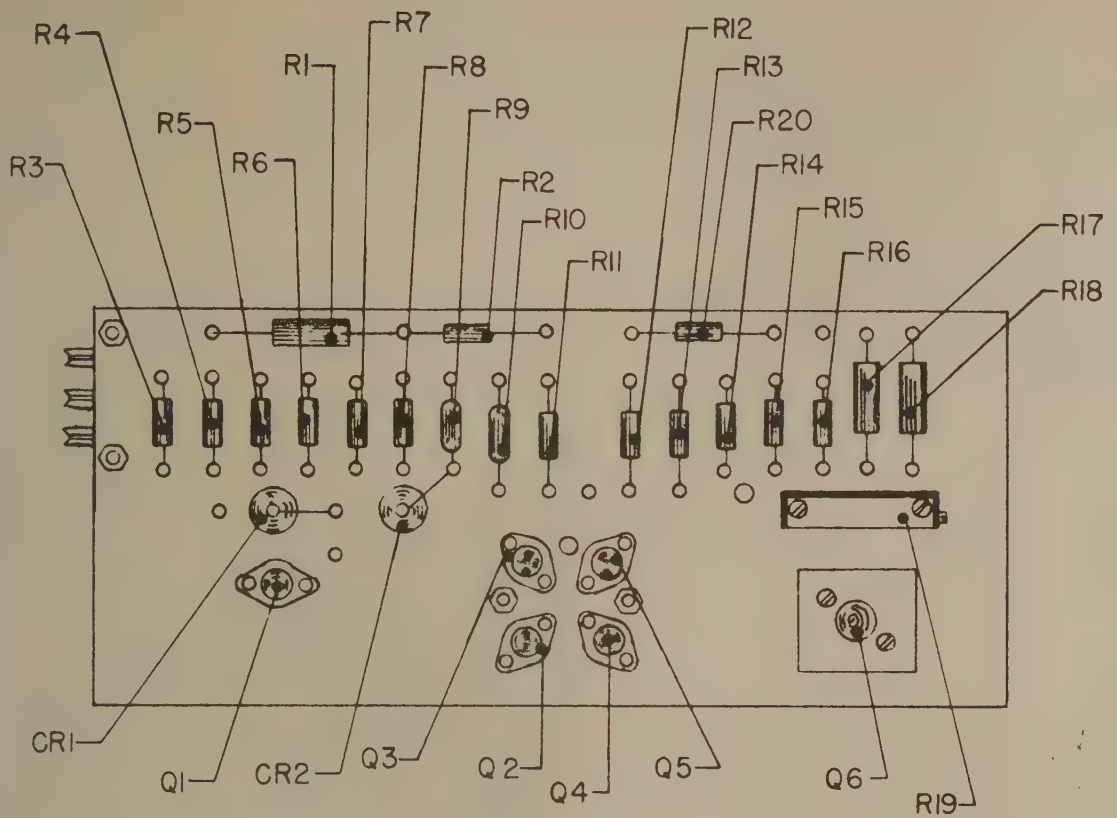
KEPCO LABORATORIES	
FLUSHING	NEW YORK
ITEM RB-1	DES 3-2-61
	APPD
MODEL SM-325-2	DFTM R.C.
DWG. No BM01074	CHKD

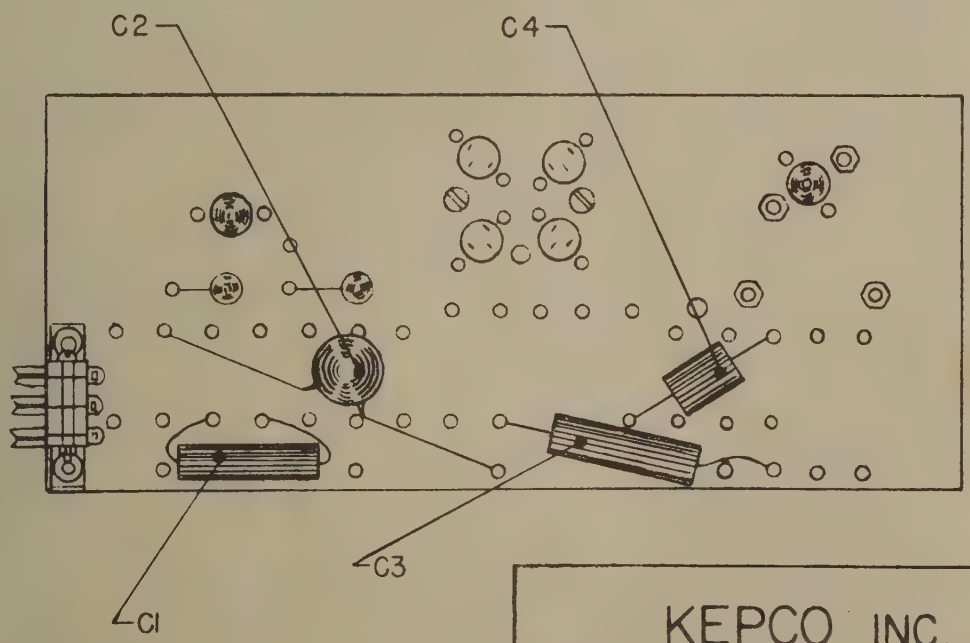




CORRECTIONS. IF ANY, APPEAR ON SHEET ATTACHED TO REAR COVER

KEPCO INC.	
FLUSHING NEW YORK	
ITEM RB-2	DES. 1-3-61
	APPD
MODEL SM—— SERIES	DFTM M.CEA
DWG. No. BM00923	CHKD

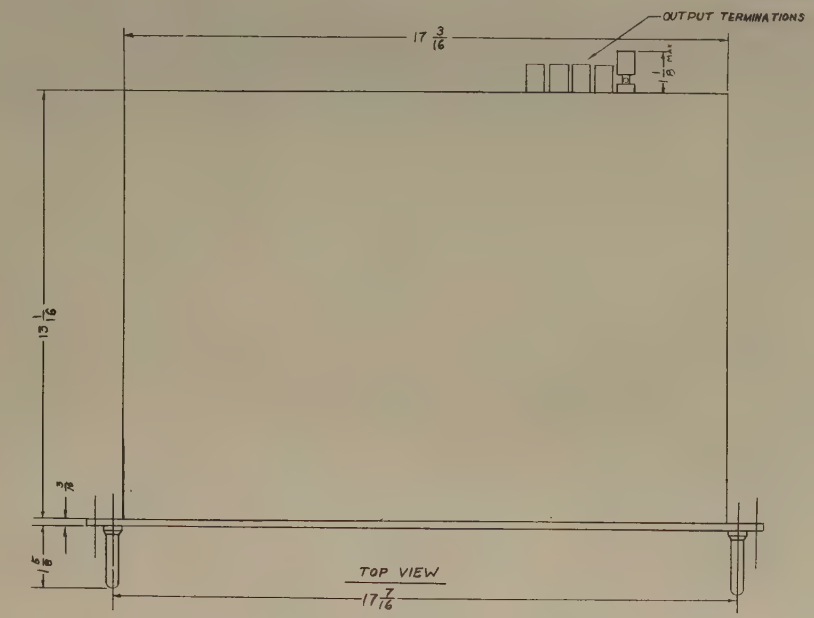


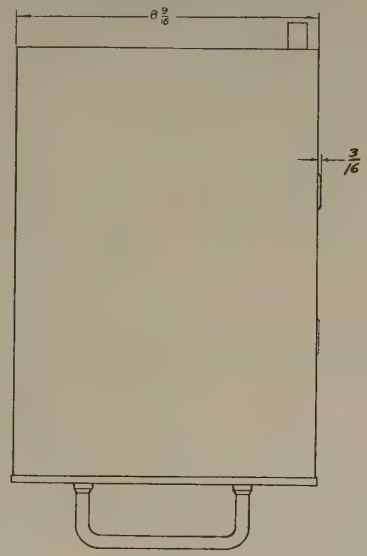


KEPCO INC.

FLUSHING NEW YORK

ITEM: CONTROL UNIT	DES. 3-1-61
	APPD J.F.
MODEL TRAM-32	DFTM R.C.
DWG. No. AM01073	CHKD



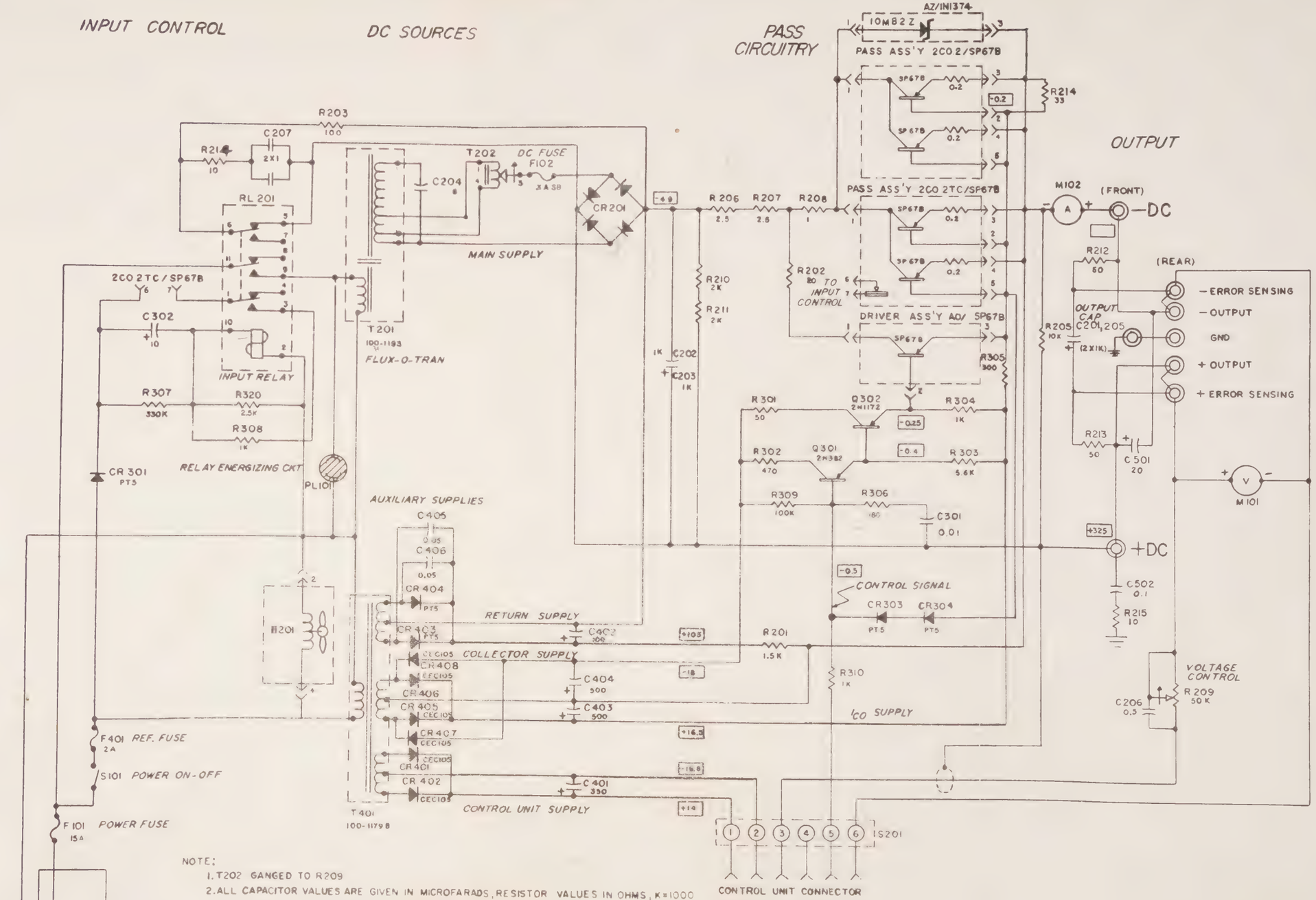


NOTE:
USED ON MODELS:

SM-36-15
SM-75-8
SM-160-4
SM 325-2

KEPCO INC. FLUSHING, N.Y.			
TITLE: OUTLINE DRAWING			
DRAWN: TV	CHECKED: JCK	APPROVED: [illegible]	DATE: 4-1-61
MODEL NO.: SM-8-3/4 SERIES	PART NO.:		SCALE: HALF
DWG. NO.: C M00583			2

TOLERANCE UNLESS OTHERWISE SPECIFIED. FRACTIONS ± 1/64 DECIMALS ± .005 ANGLES ± 1/2°



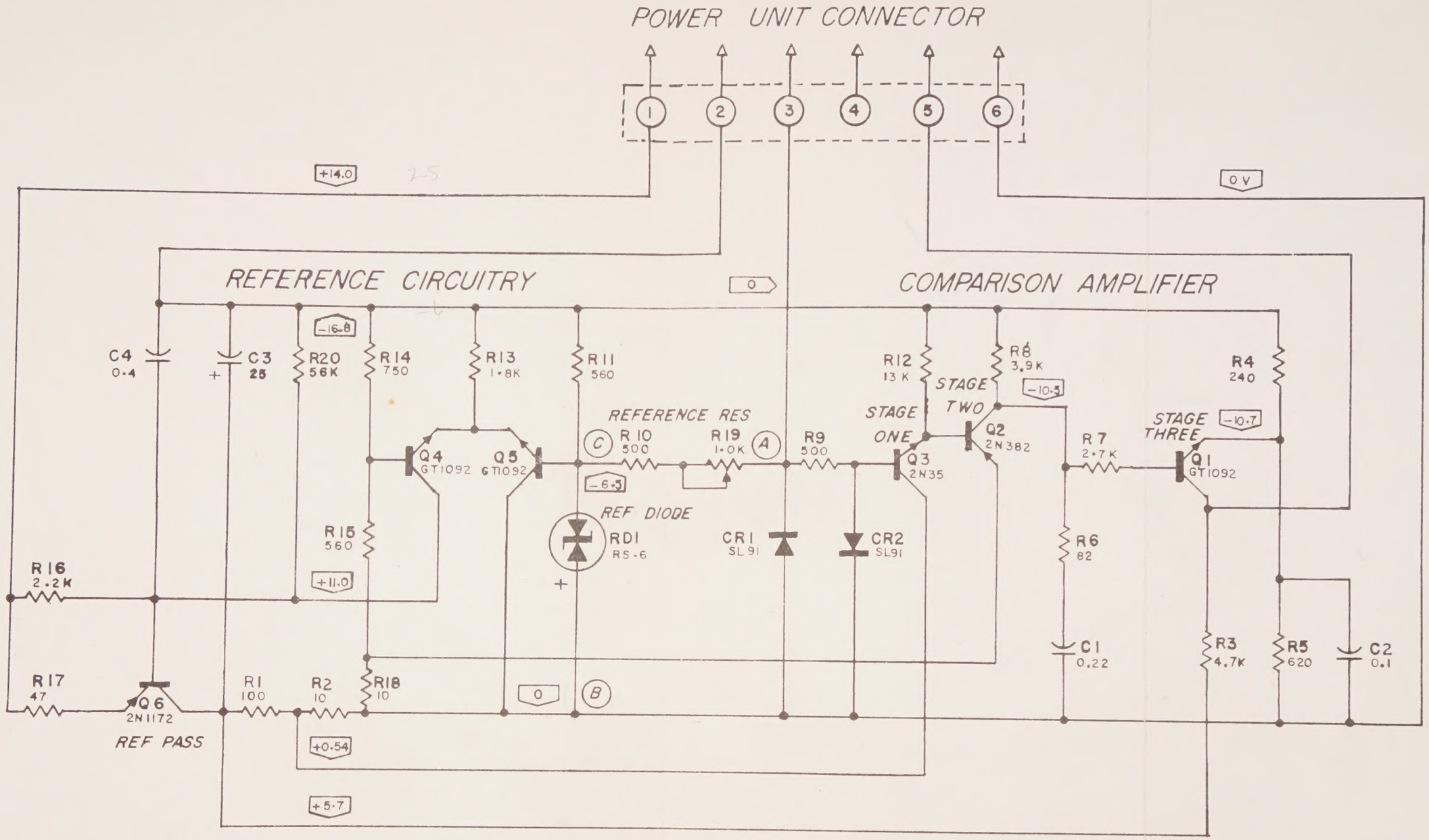
NOTE:

1. T202 GANGED TO R209
2. ALL CAPACITOR VALUES ARE GIVEN IN MICROFARADS, RESISTOR VALUES IN OHMS, K=1000
3. ALL VOLTAGE READINGS TAKEN WITH 20,000 Ω/VOLT METER, WITH REFERENCE TO MINUS OUTPUT TERMINALS, UNDER THE FOLLOWING CONDITIONS
   - A. LINE = 115 VAC
   - B. DC OUTPUT = 325 VOLTS
   - C. OUTPUT CURRENT = ZERO
4. VOLTAGES ARE TYPICAL AND ARE SUBJECT TO NORMAL COMPONENT TOLERANCE
5. METERS M101, M102 APPLY ONLY TO SM-325-2 M AND SM 325-2 MX MODELS
6. ORDER REPLACEMENT PARTS BY KEPCO PART NUMBER PROVIDED IN PARTS LIST SECTION

CONTROL UNIT CONNECTOR SOCKET (WIRING SIDE)

KEPCO LABORATORIES
FLUSHING NEW YORK

ITEM POWER UNIT	DES J.R.G.
	APPD 4-4-63
MODEL SM-325-2M	DFTM M.C.
DWG NO C-M00494	CHKD JPK



NOTES:

1- ALL VOLTAGES TAKEN UNDER CONDITIONS SPECIFIED ON MAIN SCHEMATIC

2- ALL CAPACITOR VALUES ARE GIVEN IN MICROFARADS, RESISTOR VALUES IN OHMS, UNLESS OTHERWISE NOTED (K= 1,000 OHMS)

3- ORDER REPLACEMENT PARTS BY KEPCO PART NUMBER PROVIDED IN PARTS LIST SECTION.

KEPCO INC.
FLUSHING, N.Y.

TITLE
CONTROL UNIT

DRAWN	CHECKED	APPROVED	DATE
C.A.			12-2-60
MODEL NO. TRAM 32		PART NO.	SCALE

DWG NO BM00790

131-38 SANFORD AVENUE • FLUSHING, N.Y. 11352 • Phone (212) IN 1-7000
TWX# 212-539-6623 • Cable Address: KEPCOPOWER NEWYORK